SODIUM HYDROXIDE (50% SOLUTION)

REVISED SEP 6, 1993
PRINTED AUG 31, 1995

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number	DIC 01
Formula	NaOH
Molecular Weight	40.01
CAS Name	Sodium Hydroxide

Trade Names and Synonyms

Caustic Soda Solution
Lye Solution
Sodium Hydrate Solution
White Caustic Solution
Liquid Caustic Soda
Sodium Hydroxide - 50%

Company Identification

DISTRIBUTOR

Delmarva Inc./Chemicals
1149 Skippack Pike
Blue Bell, PA 19422

PHONE NUMBERS

Product Information	(610) 292-9100
Transport Emergency	CHEMTREC 1-800-424-9300

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
Sodium Hydroxide	1310-73-2	50
Water	7732-18-5	50

HAZARDS IDENTIFICATION

Potential Health Effects

INHALATION

Immediate effects of overexposure may include: Irritation of the nose and throat with sneezing, sore throat or runny nose. Repeated and/or prolonged exposure may cause:

Chronic respiratory irritation which may progress to abnormal tissue structure or scarring; impaired lung function and breathing difficulty may result.

SKIN CONTACT
Immediate effects of overexposure may include: Skin corrosion, burns or ulcers.

EYE CONTACT
Immediate effects of overexposure may include: Corneal opacity or clouding of the eye. Eye corrosion or ulceration - blindness may result.

INGESTION
Immediate effects of overexposure may include: Burns of the mouth, throat, esophagus and stomach, with severe pain, bleeding, vomiting, diarrhea and collapse of blood pressure - damage may appear days after exposure.

ADDITIONAL HEALTH EFFECTS
Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the lungs. An in-plant case-control study of 26 kidney cancer deaths was conducted at a facility which produced multiple chemicals including chlor-alkali products, plastics, chlorine, ethylene and ethylene glycol. Significantly elevated risk estimates were noted for the chlorine production area. While presumptive exposure to asbestos and sodium hydroxide were judged likely to occur in chlorine cell maintenance, each case may also have been exposed to at least one of 64 different chemicals. These increased risk estimates are based on a small number of exposed persons and may be invalid due to the problem of multiple comparisons.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION
If inhaled, immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing and destroy contaminated shoes.

EYE CONTACT
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION
If swallowed, do not induce vomiting. Give large quantities of water. Call a physician. Never give anything by mouth to an unconscious person.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point: Will not burn.

Fire and Explosion Hazards: Contact with aluminum, tin, and zinc metals can generate flammable and explosive hydrogen gas. Follow appropriate National Fire Protection Association (NFPA) codes.

Extinguishing Media

Use media appropriate for surrounding material.

Fire Fighting Instructions

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Cool tank/container with water spray. Do not get water inside container. Fight fire from a distance, heat may rupture containers.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

Evacuate area and remain upwind. Wear full protective clothing with hood and breathing air supply. Dike spill and soak up with sand, earth or other insert absorbent. Shovel up and remove. Prevent liquid from entering sewers, waterways or low areas.

The Superfund reportable discharge is 1,000 lbs.

Small spills of caustic soda should be carefully flushed with water. Dilute acid, preferably acetic acid, may be used to neutralize the final traces of caustic after flushing.

HANDLING AND STORAGE

Handling (Personnel)

Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.

Handling (Physical Aspects)

Close container after each use.

Storage

Keep container tightly closed.

Store in clean, dry place to keep drums from rusting. Keep drums in upright position. Do not roll on side. Do not store with aluminum or magnesium. Do not mix with acids or organic materials. Use only dry, clean utensils in handling. Wash thoroughly after handling.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Keep container tightly closed.

Use sufficient ventilation to keep employee exposure below recommended limits.

Personal Protective Equipment

EYE/FACE PROTECTION

Wear safety glasses with side shields or, where the possibility exists for eye or face contact due to splashing or spraying of the material, wear coverall chemical splash goggles/full-length face shield combination.

RESPIRATORS

A NIOSH/MSHA approved air purifying respirator with a dust/mist cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure, supplied air respirator if there is any potential for an uncontrolled release or any other circumstances where air purifying respirators may not provide adequate protection.

PROTECTIVE CLOTHING

Wear acid resistant gauntlet gloves, apron and boots. Where there is a possibility of considerable exposure, wear a complete acid suit with hood, boots and gloves.

 # Exposure Guidelines

Applicable Exposure Limits: SODIUM HYDROXIDE

PEL (OSHA)	2 mg/m3, 8 hr. TWA
TLV (ACGIH)	2 mg/m3, Ceiling

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point	142 C (288 F) @ 760 mm Hg
Vapor Pressure	2.9 mm Hg @ 25 C (77 F) 18 mm Hg @ 65.5 C (149.9 F)
Melting Point	13 C (55 F)
Solubility in Water	Infinite

Physical Data

pH	>12
Odor	None
Form	Liquid
Color	Clear to slightly turbid
Specific Gravity	1.530 @ 20 C (68 F)

STABILITY AND REACTIVITY

Chemical Stability

Stable under normal storage and handling conditions.

Decomposition

Decomposes by reaction with amphoteric metals such as aluminum, tin and zinc to form flammable and explosive hydrogen gas.

Polymerization

Polymerization will not occur.

Other Hazards

Incompatibility: Incompatible with acid, aluminum, copper, tin, zinc, wool, leather, hydroquinone, organic halogens, organic peroxides, phosphorous, explosives, carbohydrates, nitrocarbons, trichloroethylene, and organic acid esters. Product absorbs water and carbon dioxide from the air. Reaction with water produces heat.

CAUTION: This incompatibility list is not all-inclusive. Sodium hydroxide will react violently with acids and many organic chemicals. These highly exothermic reactions may lead to pressure build-up and possible explosion.

TOXICOLOGICAL INFORMATION

Animal Data

Oral ALD: 500 mg/kg in rabbits

Sodium hydroxide is corrosive to skin and eyes in tests with laboratory animals. Toxic effects described in animals from short inhalation exposures include acute laryngitis. By ingestion, effects in rats included extensive necrosis of the gastric mucosa. Esophageal necrosis and death occurred in cats administered 1 mL. of a 30.5 % solution.

Animal testing indicates that this compound does not have carcinogenic effects. Tests in bacterial or mammalian cell cultures demonstrate no mutagenic activity.

ECOLOGICAL INFORMATION

Ecotoxicological Information

Aquatic Toxicity

48-hour TLm, bluegill sunfish	99 mg/L
96-hour TLm, mosquito fish	125 mg/L

DISPOSAL CONSIDERATIONS

Waste Disposal

Cleaned-up material may be a RCRA Hazardous Waste. Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State, and local regulations. Do not flush to surface water or sanitary sewer system.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO

Proper Shipping Name	SODIUM HYDROXIDE SOLUTION
Hazard Class	8
UN No.	1824
DOT/IMO Label	CORROSIVE
Packing group	II

Shipping Containers

Tank Cars

Tank Trucks

Reportable Quantity: 1,000 lbs. (454 kg)

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status: Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute	Yes
Chronic	No
Fire	No
Reactivity	Yes
Pressure	No

LISTS:

SARA Extremely Hazardous Substances	No
CERCLA Hazardous Material	Yes
SARA Toxic Chemical	No

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating

Health	3
Flammability	0
Reactivity	1

NPCA-HMIS Rating

Health	3
Flammability	0
Reactivity	1

Personal Protection rating to be supplied by user depending on use conditions.

Additional Information

NSF Limits

NSF Maximum Drinking Water Use Concentration: 100 mg/l as sodium hydroxide.

Delmarva Inc./Chemicals believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANT ABILITY, OR NY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and of the information referred to herein are beyond the control of Delmarva, Delmarva expressly disclaims any and all liability as to any results obtained or arising from any use of the product of reliance on such information.

# Indicates updated section.

End of MSDS.